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## BRIEFER ARTICLES.

A suggestion on the proper terminology of the spermaphytic flower. — Faults in botanical terminology are, as in all other branches of science, very numerous. The more striking ones may perhaps be classed under a two-fold grouping — those which represent actual differences of opinions among authorities or different methods of naming the same phenomenon and those which indicate the *vis inertiae* of the science on account of which universally abandoned notions are perpetuated by the retaining of the unmeaning or misleading words which were applied when erroneous ideas regarding anatomy, development and homologies were the only ones known to botanists. Of the first mentioned group the words Phanerogam or Gymnosperm are good examples. No one supposes that the Phanerogams are really the plants in which fertilization is distinct — as was the notion of Linnaeus. The word to-day may be applied to the group of plants which produce embryos and pollen-tubes — the Embryophyta Siphonogama of Engler, or it may be defined as the group which produces seeds and suspensors, or as the group in which one may distinguish the three embryonic layers of Hanstein and secondary endosperm. It makes no difference; the word is good enough if one defines it correctly. Whether one says Anthophyte, Spermaphyte, Seed Plant or Phanerogam is unimportant. So whether one defines the Gymnosperms as seed-plants with apical cells as Van Tieghem defines them, as Archispermous flowering-plants after Strasburger, as polyembryonic seed-plants, as seed-plants with suppressed secondary endosperm, as flowering plants with uncompressed floral axes; whether one accepts the view of Eichler regarding the homology of the cone or that of Baillon is of no importance. In any case the words are correct enough and express very well what one wishes to express when one uses them.

The other group of erroneous terms can not be dismissed so lightly. One of the most confusing places for the novice in botany is that part of the ordinary text-book which treats of the flower. The old and mistaken notion that flowers contain male and female organs took such hold of the authors on botany that, to this day, although it is about fifty years since the idea was abandoned, one can find nothing but confusion in the terms which are applied to the various phases and parts of flowers. Gray<sup>1</sup> speaks of hermaphrodite, unisexual, male and female flowers; Sachs of hermaphrodite flowers, of sexual organs — meaning stamens and pistils<sup>2</sup>; Gœbel of unisexual flowers and

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<sup>1</sup>Structural Botany p. 191.

<sup>2</sup>Physiology of Plants, Eng. tran. p. 789 and elsewhere.

hermaphroditism, of male and female flowers<sup>3</sup>; Bessey of the female flower of Gymnosperms<sup>4</sup>; Luerksen of the male and female organs, of male and female flowers (die Geschlechtsorgane, männliche Blüthe, weibliche Blüthe, etc.)<sup>5</sup>; and one can hardly find an author of note who does not thus perpetuate in his terminology notions which he must certainly have abandoned and desires to guard others against adopting.

Now in this case there seems to be no excuse for such looseness. If biology is to be an exact science it should use its terms as the chemist or physician does. Acids must not be called bases, magnetism must not be called heat, electricity must not be called thermodynamics. Let it be remembered that reproductive cells are of two kinds, those formed by division of an existing plant-body, namely spores, and those formed by fusion of gametes, namely eggs. A plant which produces pollen-grains, embryo-sacs, conidia or any kind of spore is a spore-bearing plant or sporophyte (in the widest sense); a plant which produces gametes (whether they be isogametes as in *Ulothrix*, *Mucor*, *Syncephalis*, or spermatozoids and eggs—both or either) is a gamete-producing plant or gametophyte. We may then use our terms correctly as follows:

*Gametophyte group.*

Hermaphrodite.

Unisexual, bisexual.

Male, female.

Spermatozoid, egg.

Fertilised egg.

etc.

*Sporophyte group.*

Monoclinous, diclinous.

Monoecious, dioecious.

Staminate, pistillate.

Microspore, macrospore.

Macrosporophyll, microsporophyll.

etc.

We may speak of hermaphrodite, unisexual, male prothallia of ferns, if we like, but we should certainly say monoclinous, monoecious, microsporophyllous flowers. The general adoption of some uniformity in the applying of names to flowers and parts of flowers would not only make all discussions of them clearer but would not do learners the injustice of forcing upon them the very ideas which it is deemed important they should not get.—CONWAY MACMILLAN, *Minneapolis, Minn.*

Curious case of germination in *Citrus decumana*.—I received a few days ago from Prof. Le Baron R. Briggs, of Harvard University, half of a fruit of *Citrus decumana* on the cut surface of which was a seed which had begun to germinate. The hypocotyl was, at the time, a

<sup>3</sup>Outlines of Classification and Special Morphology, Eng. tran. p. 347.

<sup>4</sup>Botany, 5th edition, p. 397.

<sup>5</sup>Systematische Botanik ii, 193.